UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2001*.

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>4</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Drawings

1.   New formal drawings are required in this application because **Figs. 1, 3 and 4** are drawn

by hand. Applicant is advised to employ the services of a competent patent draftsperson outside

the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The

formal drawings are required in reply to the Office action to avoid abandonment of the

application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

2.   **Claims 1, 3, 12, 21, 29-31, 40** and **49** are objected to because of the following

informalities:

   a) **Claim 1**:

   - Term "is calculated and **is** compared" in line 7 is redundant for the word "is".

   Examiner suggests changing this term to "is calculated and compared".

   - Term "**where**" in line 8 is improper because the limitation "at this instant" recited

previously related to at a time (not a location)

   Examiner suggests changing this term to "**when**".

   - Term "performing only those subfunctions **are performed** that influence" in line 9 is

very confused for the word "are performed".

   Examiner suggests changing this term to "performing only those subfunctions that

influence".

   b) **Claim 3:** term "**that** subfunctions **different** from" in **line 3** is improper in grammar.

Examiner suggests changing this term to "**those** subfunctions **differed** from".

c) **Claims 12 and 21**: term "is calculated and **is** compared" in line 7 is redundant for the word "is".

Examiner suggests changing this term to "is calculated and compared".

d) **Claims 12 and 21**: term "**where**" in line 8 is improper because the limitation "at this instant" recited previously related to at a time (not a location)

Examiner suggests changing this term to "**when**".

e) **Claims 29, 40 and 49**: term "**where**" in line 11 is improper because the limitation "at this instant" recited previously related to at a time (not a location)

Examiner suggests changing this term to "**when**".

f) **Claim 30**: term "**claim 15**" in line 1 is improper. It seems that applicant meant this term is "**claim 29**"; this would be a typo.

Examiner suggests changing this term to "**claim 29**".

Note: Based on this suggestion, Examiner considered and examined the Claim 30 is being dependent on the claim 29.

g) **Claim 31**: term "subfunctions **different** from" in line 4 is improper in grammar for the adjective "different"; it should be a verb not an adjective.

Examiner suggests changing this term to "subfunctions **differed** from".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the **first paragraph** of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4.   **Claims 13** and **41** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 13 recites the limitation "wherein each of the subfunctions influence the quality of the transmitted information with different degrees of severity or importance, and in said case, performing for <u>channels having a low priority level</u> **only** <u>those of the subfunctions</u> which influence the transmitted information with a low degree of severity or a high degree of importance". The claimed limitations "performing for <u>channels having a low priority level</u> **only** <u>those of the subfunctions</u> which influence the transmitted information with a low degree of severity or a high degree of importance" are not adequately disclosed by the specification in page 10 lines 5-10 since the limitation "**only**" cannot be distinguished between the limitations "channels having a low priority" and "those of subfunctions which influence the transmitted information with a low degree of severity or a high degree of importance".

Does the Applicant claim "**performing for channels having a low priority only,** those of the subfunctions ---" , or "performing for channels having a low priority, **only those of the subfunctions ---**"? They are two different functions.

Claim 41 has the same problem as described in the claim 13 above.

5.   The following is a quotation of the **second paragraph** of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6.   **Claims 1-56** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) **Claim 1** recites the limitations **"the quality** of the transmitted information" in lines 4-5; **"the total processing"** in lines 6-7; **"the total processing capability"** in lines 7-8; and **"the case"** in line 8. There are insufficient antecedent basis for these limitations in the claim.

b) **Claim 8** recited the limitation **"wherein at each instant preselected ones of the subfunctions are always performed for each channel"** in lines 1-2 is not clearly disclosed by the specification.

c) **Claim 12** and **Claim 21** recite the limitations **"the total processing"** in lines 6-7; **"the total processing capability"** in lines 7-8; and **"the case"** in line 8. There are insufficient antecedent basis for these limitations in the claim.

d) **Claim 13** recites the limitation **"said case"** in line 2. There are insufficient antecedent basis for these limitations in the claim. Does the "said case" refer to the "the case" that recited in line 8 of claim 12, or it is referring to the case "wherein each of the subfunctions influence the quality of the transmitted information with different degrees of severity or importance" as recited in lines 1-2 of this claim 13?

e) **Claims 13 and 41:** **Claim 13** recites the limitation "wherein each of the subfunctions influence the quality of the transmitted information with different degrees of severity or importance, and in said case, performing for <u>channels having a low priority level</u> **only** <u>those of the subfunctions</u> which influence the transmitted information with a low degree of severity or a

high degree of importance". The claimed limitations "performing for <u>channels having a low</u>

<u>priority level</u> **only** <u>those of the subfunctions</u>" is vague and indefinite. Does the Applicant mean

"performing for channels having a low priority only, those of the subfunctions ---", or the

Applicant means "performing for channels having a low priority, **only those of the subfunctions**

---"? The **Claim 41** has the same as this problem.

f) **Claim 29** recites the limitations **"the quality** of the information" in lines 6-7; **"the**

total processing" in line 9; **"the total processing capability"** in line 10; and **"the case"** in line

11. There are insufficient antecedent basis for these limitations in the claim.

g) **Claim 40 and Claim 49** recite the limitations **"the total processing"** in lines 8-9; **"the**

total processing capability" in line 10; and **"the case"** in line 11. There are insufficient

antecedent basis for these limitations in the claim.

h) **Claim 41** recites the limitation **"said case"** in line 3. There are insufficient antecedent

basis for these limitations in the claim. Does the "said case" refer to the "the case" that recited in

line 11 of claim 40, or it is referring to the case "wherein calculation modules are arranged to

perform subfunctions which influence the quality of the transmitted information with different

degrees of severity or importance, and that the control means are arranged to active" as recited in

lines 1-3 of the claim 41?

i) **Claims 1, 12, 21, 29, 40 and 49** recite the limitation **"the total processing capability"**

in lines 7-8 of claims 1, 12 and 21, and in line 10 of claims 29, 40 and 49 is not adequately

disclosed by the specification.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   **Claims 1-5, 8-12, 14, 17-20, 29-33, 36-40, 42 and 45-48** are rejected under 35 U.S.C.

103(a) as being unpatentable over **Witte et al.** (US Patent No. **5,655,120**) in view of **Anderson**

et al. (US Patent No. **5,628,013**).

a) **In Regarding to Claims 1 and 29**: **Witte et al. disclosed** a method and a processor of

processing information, in particular speech information, in a communication network in which

the information is transmitted in pieces, in particular in packets or in slots or frames *(see Figs.1-*

4), the method comprising:

making calculations according to an algorithm *(see col.2 line 63-col.3 line 3; and col.6*

lines 55-61), the algorithm comprising:

a multitude of subfunctions *(see Fig.2: group of processors VCPUs)*, each of the

subfunctions influencing a quality of the transmitted information with different degrees

of severity or importance *(see col.3 lines 36-54)*, and that

in a case when the total processing required exceeds the total processing

capability, performing only those subfunctions that influence the transmitted information

with a low degree of severity or a high degree of importance *(see col.3 line 63 – col.4 line*

9).

Witte et al. failed to explicitly disclose at each instant, in particular for each piece of information, a measure of a total processing required at this instant is calculated and compared to a total processing capability at this instant.

Anderson et al. disclosed such at each instant, in particular for each piece of information, a measure of a total processing required at this instant is calculated and compared to a total processing capability at this instant *(see Fig.5: in which, at each instant, the measured bandwidth (shaded rectangles) is compared to the Guaranteed Processing Bandwidth "GPB" to know whether or not the measured bandwidth exceeded the total processing capability at each instant; and see col.8 lines 26-40).*

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement such at each instant, in particular for each piece of information, a measure of a total processing required at this instant is calculated and compared to a total processing capability at this instant throughout the multi-processor system of Witte et al, as taught by Anderson et al., in order to determine whether there is enough processing time available within a frame to process a task, **the motivation being** to support different data rates, different types of communication information, and prevent a processing time not exceeded a total processing time.

b) **In Regarding to Claims 2 and 30:** **Witte et al. further disclosed** wherein at each instant preselected subfunctions are performed which influence the transmitted information with a low degree of severity or a high degree of importance *(see col.4 lines 1-5: the manager GPLM implemented on the group processor GPn is also responsible for identifying the switching-*

oriented overload priority levels (hence preselected subfunctions are performed the transmitted

information with high degree of importance)).

c) **In Regarding to Claims 3 and 31**: **Witte et al. further disclosed** wherein at each

instant the processing required by the preselected subfunctions is calculated and the processing

capability remaining after performing the preselected subfunctions is determined and those

subfunctions differed from the preselected subfunctions are performed according to the

calculated remaining processing capability *(see col.5 lines 5-22)*.

d) **In Regarding to Claims 4 and 32**: **Witte et al. further disclosed** wherein the

information in the network is sent in a plurality of parallel channels having different priority

levels, the information in each channel being processed, and that at each instant the measure of

the total processing required for all of the parallel channels at this instant is calculated and

compared, and that in the case where the required processing required exceeds the total

processing capability, performing more subfunctions for channels having a high priority level

than for channels having a low priority level *(see Figs.1 and 3; see col.3 line 36 - col.4 line 42;*

and see col.7 lines 15-18).

e) **In Regarding to Claims 5 and 33**: **Witte et al.** and **Anderson et al. disclosed** all

aspects of these claims as set forth in claims 1 and 29, respectively.

Both Witte et al. and **Anderson et al. failed to explicitly disclose** wherein the algorithm

comprises an echo cancellation algorithm. **However, Anderson et al disclosed** a smooth

algorithm as shown in Fig.7. Some examples of smooth algorithms include algorithms for

implementing Finite Input Response and Infinite Input Response filters, equalizers, and **echo**

processors, etc. *(see col. 9 lines 10-25)*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to implement such an echo processors of **Anderson et al.** to an echo

cancellation algorithm as the instant claim of the Applicant for a purpose of noise echo

canceling, **the motivation being** to cancel reflection of sound waves during a telephone

communication.

f) **In Regarding to Claims 8 and 36**: **Witte et al. further disclosed** wherein at each

instant preselected ones of the subfunctions are always performed for each channel, the

preselected ones of the subfunctions being selected to require processing not exceeding the total

processing capability *(see col.4 lines 23-42: on basis of another value p that can be calculated*

(hence subfunctions are always performed), and which reflects the acceptance capability of the

remaining group processors for further calls; and see col.5 lines 8-26: procedure calculate value

p, where variable p sum is the total processing capability).

g) **In Regarding to Claims 9 and 37**: **Witte et al. further disclosed** wherein at each

instant the remaining subfunctions not included in the preselected ones are performed in

accordance with the total processing left after performing the preselected ones of the

subfunctions *(see col.4 lines 9-28; and col.4 line 44-col.5 line).*

h) **In Regarding to Claims 10 and 38**: **Witte et al.** and **Anderson et al. disclosed** all

aspects of these claims as set forth in claims 1 and 29, respectively.

Witte et al. failed to explicitly disclose wherein the processing required by each of the

subfunctions is determined as the number of processor instructions used by the subfunction.

Anderson et al disclosed wherein the processing required by each of the subfunctions is

determined as the number of processor instructions used by the subfunction *(see col.7 lines 13-*

20: GPB actual register; and col.8 line 40 – col.9 line 6: when processing times are described, it

is a reference to DSP instruction cycles (hence each of the subfunctions is determined as the

number of processor instructions used by the subfunction)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to implement such processing required by each of the subfunctions is

determined as the number of processor instructions used by the subfunction throughout the

multi-processor system of Witte et al., as taught by Anderson et al., so that real-time cells can be

process effectively, **the motivation being** to enhance the process of Witte et al.

i) **In Regarding to Claims 11 and 39: Witte et al. further disclosed** wherein the

number of parallel channels in which information is sent in the communication network is based

on an average of the processing required for performing the algorithm *(see col.6 lines 62-67).*

j) **In Regarding to Claim 12:** the claimed subject matters of a method disclosed in

claim 12 are the same as that of the method recited in **claim 1,** except for the following claimed

subject matters:

the information in the network being sent in a plurality of parallel channels, and

performing more subfunctions for channels having a high priority level than for channels having

a low priority level.

However, Witte et al. also disclosed such claimed subject matters *(see Fig.1: parallel*

processors that are connected to a network (un-shown) via an ATM Mux and a Switching

network; and see col.7 lines 15-18).

Therefore, the rejection of Witte et al and Anderson et al. applied to **Claim 1** would also

apply to **Claim 12 .**

k) **In Regarding to Claim 14 and 19**: all of the claimed subject matters of these claims are the same as that of claims 5 and 10, respectively, except for a difference that was described in the claim 12 above. **Therefore**, the rejection of Witte et al and Anderson et al. applied to **Claims 5** and **10** would also apply to **Claims 14 and 19**, respectively.

l) **In Regarding to Claim 17**: **Witte et al. further disclosed** wherein at each instant preselected ones of the subfunctions are always performed for each channel, the preselected ones of the subfunctions being selected to require processing not exceeding the total processing capability *(see col.4 lines 23-42: on basis of another value p that can be calculate (hence subfunctions are always performed), and which reflects the acceptance capability of the remaining group processors for further calls; and see col.5 lines 8-26: procedure calculate value p, where variable p sum is the total processing capability)*.

m) **In Regarding to Claim 18**: **Witte et al. further disclosed** wherein at each instant the remaining subfunctions not included in the preselected ones are performed in accordance with the total processing left after performing the preselected ones of the subfunctions *(see col.4 lines 9-28; and col.4 line 44-col.5 line)*.

n) **In Regarding to Claim 20**: **Witte et al. further disclosed** wherein the number of parallel channels in which information is sent in the communication network is based on an average of the processing required for performing the algorithm *(see col.6 lines 62-67)*.

o) **In Regarding to Claims 40, 42 and 45-48**: these claims are rejected for the same reasons as Claims 12, 14 and 17-20, respectively because the claimed subject matters of the processor in Claims 40, 42 and 45-48 are the same as the subject matters of the method in Claims 12, 14 and 17-20, respectively.

9.   **Claims 6, 7, 15, 16, 34, 35, 43** and **44** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Witte et al.** (US Patent No. **5,655,120**) in view of **Anderson et al.** (US Patent

No. **5,628,013**) as applied to claims 1 and 5; 12 and 14; and 29 and 33 above, and further in view

of the **Admitted Prior Art Fig.1**.

      a) **In Regarding to Claims 6 and 34**: **Witte et al.** and **Anderson et al. disclosed** all

aspects of these claims as set forth in claims 1 and 5; claims 29 and 33; respectively.

      Both Witte et al. and **Anderson et al. failed to explicitly disclose** wherein the echo

cancellation algorithm function is divided into sub-functions including at least one of: filtering,

filter updating, double-talk detection, non-linear processing, noise estimation, and network

probing.

      However, the Admitted Fig.1 disclosed appropriate components corresponding to such

filtering, filter updating, double-talk detection, non-linear processing, noise estimation, and

network probing. *(see Fig.1 Prior Art: blocks 102, 118, 104, 106, and 120, respectively)*.

      Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to implement such echo cancellation algorithm function is divided into

sub-functions including at least one of: filtering, filter updating, double-talk detection, non-linear

processing, noise estimation, and network probing to the group of processors of the Witte et al,

as taught by **the Admitted Prior Art Fig.1** in a purpose of noise echo canceling during a

telephone communication, **the motivation being** to enhance the process of Witte et al. for echo

canceling.

b) **In Regarding to Claims 7 and 35**: Witte et al., Anderson et al., and the **Admitted Prior Art Fig.1 disclosed** all aspects of these claims as set forth in claims 1, 5 and 6; claims 29, 33 and 34; respectively.

Witte et al., Anderson et al. and the **Admitted Prior Art Fig.1 failed to explicitly disclose** wherein for the subfunctions of filtering, non-linear processing, filter updating, double talk detection, noise estimation, and network probing, taken in this sequential order, they are assigned degrees of severity or importance in decreasing and increasing scales respectively.

It would have been an obvious matter of design choice to take in a sequential order for a process of echo canceling, since such a modification would have involved a mere change in a sequential order of a process. Based on the priority of an information for a sequential order of a process is generally recognized as being within the level of ordinary skill in the art.

c) **In Regarding to Claims 15 and 16**: all of the claimed subject matters of these claims are the same as that of claims 6 and 7, respectively, except for a difference that was described in the claim 12 above. **Therefore**, the rejection of Witte et al and Anderson et al. applied to Claims 6 and 7 would apply to Claims 15 and 16, respectively.

d) **In Regarding to Claims 43 and 44**: these claims are rejected for the same reasons as Claims 15 and 16, respectively because the claimed subject matters of the processor in Claims 43 and 44 are the same as the subject matters of the method in Claims 15 and 16, respectively.

10. **Claims 21, 22, 25-28, 49, 50 and 53-56** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Witte et al.** (US Patent No. 5,655,120) in view of **Anderson et al.** (US Patent

No. **5,628,013**) as applied to claims 1 and 12 above, and further in view of **Paneth et al.** (US

Patent No. **5,121,391**)

a) **In Regarding to Claim 21**: the claimed subject matters of a method disclosed in

claim 21 are the same as that of the method in **claim 12**, except for performing some

subfunctions for the channels in accordance with a **round robin scheme**.

Paneth et al. disclosed such a round robin scheme *(see col.31 lines 50-54)*.

It would have been obvious to one of ordinary skill in the art at the time of the invention

was made to implement such a round robin to the step of setting the load balance flag as shown

in Fig.4 of the Witte et al, as taught by Paneth et al. in a purpose of a fair service to subscribers

in a communication network, **the motivation being** to provide a first-in first-out (FIFO) process

and operate a communication system more easily because less process.

b) **In Regarding to Claim 22**: **Witte et al.** and **Anderson et al. disclosed** all aspects of

these claims as set forth in claim 21.

Both Witte et al. and **Anderson et al. failed to explicitly disclose** wherein the algorithm

comprises an echo cancellation algorithm. **However, Anderson et al disclosed** a smooth

algorithm as shown in Fig.7. Some examples of smooth algorithms include algorithms for

implementing Finite Input Response and Infinite Input Response filters, equalizers, and **echo**

processors, etc. *(see col. 9 lines 10-25)*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to implement such an echo processors of **Anderson et al.** to an echo

cancellation algorithm as the instant claim of the Applicant for a purpose of noise echo

canceling, **the motivation being** to cancel reflection of sound waves during a telephone communication.

c) **In Regarding to Claim 25**: **Witte et al. further disclosed** wherein at each instant preselected ones of the subfunctions are always performed for each channel, the preselected ones of the subfunctions being selected to require processing not exceeding the total processing capability *(see col.4 lines 23-42: on basis of another value p that can be calculate (hence subfunctions are always performed), and which reflects the acceptance capability of the remaining group processors for further calls; and see col.5 lines 8-26: procedure calculate value p, where variable **p sum** is the total processing capability).*

d) **In Regarding to Claim 26**: **Witte et al. further disclosed** wherein at each instant the remaining subfunctions not included in the preselected ones are performed in accordance with the total processing left after performing the preselected ones of the subfunctions *(see col.4 lines 9-28; and col.4 line 44-col.5 line).*

e) **In Regarding to Claim 27**: **Witte et al.** and **Anderson et al. disclosed** all aspects of these claims as set forth in claim 21.

Witte et al. failed to explicitly disclose wherein the processing required by each of the subfunctions is determined as the number of processor instructions used by the subfunction.

Anderson et al disclosed wherein the processing required by each of the subfunctions is determined as the number of processor instructions used by the subfunction *(see col.7 lines 13-20: GPB actual register; and col.8 line 40 – col.9 line 6: when processing times are described, it is a reference to DSP instruction cycles, hence each of the subfunctions is determined as the number of processor instructions used by the subfunction).*

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to implement such processing required by each of the subfunctions is

determined as the number of processor instructions used by the subfunction throughout the

multi-processor system of Witte et al., as taught by Anderson et al., so that real-time cells can be

process effectively, **the motivation being** to enhance the process of Witte et al.

f) **In Regarding to Claim 28**: **Witte et al. further disclosed** wherein the number of

parallel channels in which information is sent in the communication network is based on an

average of the processing required for performing the algorithm *(see col.6 lines 62-67)*.

g) **In Regarding to Claims 49, 50 and 53-55**: these claims are rejected for the same

reasons as Claims 21, 22 and 25-27, respectively because the claimed subject matters of the

processor in Claims 49, 50 and 53-55 are the same as the subject matters of the method in Claims

21, 22 and 25-27, respectively.

h) **In Regarding to Claim 56**: **Witte et al. further disclosed** wherein the number of

parallel channels in which information is sent in the communication network is based on an

average of the processing required for performing the algorithm *(see col.6 lines 62-67)*.

11.   **Claims 23, 24, 51 and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Witte et al. (US Patent No. **5,655,120**) in view of **Anderson et al.** (US Patent No. **5,628,013**)

and **Paneth et al.** (US Patent No. **5,121,391**) as applied to claims 21 and 22 above, and further in

view of the **Admitted Prior Art Fig.1**.

a) **In Regarding to Claim 23**: **Witte et al.** and **Anderson et al. disclosed** all aspects of

these claims as set forth in claims 21 and 22.

Both Witte et al. and **Anderson et al. failed to explicitly disclose** wherein the echo

cancellation algorithm function is divided into sub-functions including at least one of: filtering,

filter updating, double-talk detection, non-linear processing, noise estimation, and network

probing.

However, the Admitted Fig.1 disclosed appropriate components corresponding to such

filtering, filter updating, double-talk detection, non-linear processing, noise estimation, and

network probing. *(see Fig.1 Prior Art: blocks 102, 118, 104, 106, and 120, respectively).*

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the invention was made to implement such echo cancellation algorithm function is divided into

sub-functions including at least one of: filtering, filter updating, double-talk detection, non-linear

processing, noise estimation, and network probing to the group of processors of the Witte et al,

as taught by **the Admitted Prior Art Fig.1** in a purpose of noise echo canceling during a

telephone communication, **the motivation being** to enhance the process of Witte et al.

b) **In Regarding to Claim 24: Witte et al., Anderson et al.,** and the **Admitted Prior**

Art Fig.1 disclosed all aspects of these claims as set forth in claims 21-23.

Witte et al., Anderson et al. and the **Admitted Prior Art Fig.1 failed to explicitly**

disclose wherein for the subfunctions of filtering, non-linear processing, filter updating, double

talk detection, noise estimation, and network probing, taken in this sequential order, they are

assigned degrees of severity or importance in decreasing and increasing scales respectively.

It would have been an obvious matter of design choice to take in a sequential order for

a process of echo canceling, since such a modification would have involved a mere change in a

sequential order of a process. Based on the priority of an information for a sequential order of a

process is generally recognized as being within the level of ordinary skill in the art.

c) **In Regarding to Claims 51 and 52**: these claims are rejected for the same reasons as

Claims 23 and 24, respectively because the claimed subject matters of the processor in Claims 51

and 52 are the same as the subject matters of the method in Claims 23 and 24, respectively.

Conclusion

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The

examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT
5/22/2004

Primary Ex: Phirin Sam